

Search for invisible decays and rare decays at BESIII

Wednesday, 10 August 2022 09:30 (15 minutes)

BESIII has collected 2.5 B $\psi(2S)$ events and 10 B J/ψ events. The huge data sample provide an excellent chance to search for new physics in charmonium decays. We report the search for the decay $J/\psi \rightarrow \gamma + invisible$ and a potential light Higgs A_0 in radiative J/ψ decay. We also search for the J/ψ rare weak decay to $D^- e^+ \nu_e + c.c.$, and present the most stringent constraints of 10^{-6} at 90% confidence level. The huge J/ψ data set also produce lots of hyperon events at BESIII, which allow us to search for the rare decay of hyperon, such as the invisible decay of Λ , Ξ semi-leptonic decay. The FCNC process for $D_0 \rightarrow \pi^0 \nu \bar{\nu}$ is also search with the near threshold D_0 events at BESIII.

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Session Classification: Parallel Session III (2): Hadron and Flavor Physics

Track Classification: 强子物理与味物理